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and Introductory Lectures

JUVENILE MENTAL ARITHMETIC;

DESIGNED FOR THE

PRIMARY AND COMMON SCHOOLS.

AND

ALSO AN INTRODUCTION TO THE

AMERICAN

EXPERIMENTAL ARITHMETIC.

AND

ADAPTED TO THE REQUISITES OF THE
NEW SYSTEM OF EDUCATION, WHICH
IS NOW BEING INTRODUCED BY THE
STATE OF MASSACHUSETTS.

BY JERRY B. STODOLSKY.

TEACHER OF THE

COMMONS OF NORTHAMPTON COUNTY.

Author of the

COMMONS OF NORTHAMPTON COUNTY.

AS ADAPTED, BY THE STATE OF MASSACHUSETTS.

NEW YORK.

PUBLISHED BY GORTON, LAMPORT & CO.

NO. 111 NASSAU ST.

1852

Edue T 118.53.500



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Stoddard's Introductory Lessons.

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IN WRITTEN ARITHMETIC."

BY JOHN F. STODDARD,
GRADUATE OF THE
NEW YORK STATE NORMAL SCHOOL,
AUTHOR OF THE
AMERICAN INTELLECTUAL ARITHMETIC,
AND PRINCIPAL OF THE
LIBERTY NORMAL INSTITUTE.

NEW YORK:
PUBLISHED BY CORNISH, LAMPORT & CO.
ST. LOUIS, (Mo.): McCARTNEY & LAMPORT.

1853.

Edw T 118,53,500

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## PREFACE.

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YIELDING to the request of my friends, I have prepared the following work for Primary and Common Schools; and should it be a suitable stepping stone to something higher, diminish the labor of teachers, or in any other way be instrumental in advancing the cause of education, I shall feel amply remunerated.

Youth is, certainly, the time to lay the foundation for a thorough education. The habits of reasoning then acquired will exert their influence, either favorably or unfavorably to the future advancement of the individual. Hence, the importance of having books adapted to the capacity of children, and at the same time, so arranged as to draw out the powers of the mind, and to produce a correct habit of reasoning.

Teachers have all, undoubtedly, observed the injurious effects arising from crowding, or endeavoring to crowd, into the youthful mind a great number of truths which are but a tax on the memory, and not facts, the explanation of which are comprehensible to their powers of understanding.

These Introductory Lessons have also, been prepared with a desire that they might guide the youthful student smoothly along the path of knowledge, and qualify him for grappling with the severer studies with success.

Addition, Subtraction, Multiplication, Division, and a few of the Tables of Weights and Measures have been taken up in order and illustrated with appropriate examples. The subject of Fractions has also been pursued as far as was thought advisable in a work like this

JOHN F. STODDARD.

LIBERTY, Oct. 1st, 1849.

## SUGGESTIONS TO TEACHERS.

To those whose *experience is limited*, the *Author* would beg leave to present the following suggestion in regard to the *most approved* methods of teaching this *important branch of study*.

*First.*—The lessons should be assigned previous to recitation, to afford the pupil an opportunity for its examination: the use of the book, during class exercise, should be *entirely prohibited*.

*Secondly.*—To concentrate the attention of the whole class, questions should be assigned *promiscuously*, and not in *rotation* as is too frequently done.

*Thirdly.*—No question should be read more than once, if done *slowly* and *distinctly*; the student should be required to *reproduce* and *solve* it without interruption, unless it be to make a *necessary criticism* or *correction*. Care should be taken that the language of the pupil be *rigidly accurate*, as to *construction* and *articulation*.

*Fourthly.*—It is respectfully suggested that, the particular forms given for the solution of questions be carefully adhered to, unless, *better* ones should be devised by the teacher.

J. F. S.

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§7—Those wishing to become thoroughly acquainted with *Fractions* and arithmetical questions of almost every kind, are referred to the "American Intellectual Arithmetic."

# ARITHMETIC.

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**QUANTITY** is anything that can be increased or diminished, and there are two ways, usually employed, to express it: the Roman and the Arabic.

The Roman method of notation is employed in numbering Chapters, Sections, &c. The characters employed are I, V, X, L, C, D and M.

The Arabic method of notation is employed in all arithmetical calculations. The characters employed are 1, 2, 3, 4, 5, 6, 7, 8, 9 and 0, and are called Figures. And figures are expressions of quantity.

Different combinations of these characters will express any quantity, either in the Arabic, or the Roman method of notation.

What is quantity? How many, and what are the methods of expressing it? What is the Roman method of notation used for? How many, and what are the characters employed in the Roman method of notation?

What is the Arabic method of notation used for? How many, and what are the characters employed in this method of notation? Can any quantity be expressed by either of these methods of notation?

The Roman and the Arabic method of expressing numbers, from one to fifty are as follows :

## ROMAN AND ARABIC NUMBERS.

| ROMAN. | ARABIC.      | ROMAN. | ARABIC.          |
|--------|--------------|--------|------------------|
| I      | 1 one.       | XVII   | 17 seventeen.    |
| II     | 2 two.       | XVIII  | 18 eighteen.     |
| III    | 3 three.     | XIX    | 19 nineteen      |
| IV     | 4 four.      | XX     | 20 twenty        |
| V      | 5 five.      | XXI    | 21 twenty-one.   |
| VI     | 6 six.       | XXII   | 22 twenty-two.   |
| VII    | 7 seven.     | XXIII  | 23 twenty-three. |
| VIII   | 8 eight.     | XXIV   | 24 twenty-four.  |
| IX     | 9 nine.      | XXV    | 25 twenty-five.  |
| X      | 10 ten.      | XXVI   | 26 twenty-six.   |
| XI     | 11 eleven.   | XXVII  | 27 twenty-seven. |
| XII    | 12 twelve.   | XXVIII | 28 twenty-eight. |
| XIII   | 13 thirteen. | XXIX   | 29 twenty-nine.  |
| XIV    | 14 fourteen. | XXX    | 30 thirty.       |
| XV     | 15 fifteen.  | XL     | 40 forty.        |
| XVI    | 16 sixteen.  | L      | 50 fifty.        |

# CHAPTER I.

## LESSON I.

1. How many are 2 and 1?
2. How many are 2 and 2?
3. How many are 2 and 3?
4. How many are 2 and 4?
5. How many are 2 and 5?
6. How many are 2 and 6?
7. How many are 2 and 7?
8. How many are 2 and 8?
9. How many are 2 and 9?
10. How many are 2 and 10?
11. 2 and 2 are how many?
12. 2 and 5 are how many?
13. 2 and 9 are how many?
14. 2 and 8 are how many?
15. 2 and 6 are how many?
16. 2 and 4 are how many?
17. 2 and 3 are how many?
18. 3 and 7 are how many?
19. 2 and 10 are how many?
20. 2 and 11 are how many?

## LESSON II.

1. Henry had 4 apples, and bought 2 more ; how many did he then have ?

SOLUTION.—If Henry had 4 apples, and should buy 2 more, he would have 4 and 2 which are 6 apples.

2. Harvey had 5 books, and James had 2; how many did they both have?

3. Mary has 3 peaches, and John gave her 2 more; how many did she then have?

4. Moses had 2 cents, and his father gave him 8 more; how many did he then have?

5. Edwin had 10 marbles, and found 2 more; how many did he then have?

6. Catharine had 6 pinks, and Mary gave her 2 more; how many had she then?

7. Alice found 9 pins, and her mother gave her 2 more; how many did she then have?

8. Francis, during the day, spelled 7 words correctly and 2 incorrectly; how many words were given out to him.

10. Newton gave 11 cents for a top, and 2 cents for a marble; what did he give for both?

### LESSON III.

1. How many are 3 and 1?
2. How many are 3 and 2?
3. How many are 3 and 3?
4. How many are 3 and 4?
5. How many are 3 and 5?
6. How many are 3 and 6?
7. How many are 3 and 7?
8. How many are 3 and 8?
9. How many are 3 and 9?
10. How many are 3 and 10?
11. 4 and 3 are how many?
12. 3 and 3 are how many?
13. 2 and 3 are how many?

14. 6 and 3 are how many ?
15. 8 and 3 are how many ?
16. 3 and 10 are how many ?
17. 3 and 7 are how many ?
18. 5 and 3 are how many ?
19. 3 and 3 are how many ?
20. 11 and 3 are how many ?

### LESSON IV.

1. David received 6 apples from his cousin and 3 from his sister ; how many apples did he receive in all ?
2. A boy paid 3 cents for a cake, and 2 cents for an orange ; how much did he pay for both ?
3. Emily bought a melon for 10 cents, and a lemon for 3 cents ; what did she give for both ?
4. There were 9 boys on one bench and 3 on another ; how many were there on both ?
5. Harriet had 8 sweet apples and 3 sour ones ; how many had she in all ?
6. Hezekiah shot 5 red squirrels and 3 grey ones ; how many did he shoot in all ?
7. Darius had 3 books, and his father gave him 3 more ; how many had he then ?
8. Fanny had 6 plums, and her sister gave her 3 more ; how many had she then ?
9. Betsy gave 7 cents for a ball of tape, and 3 cents for some thread ; what did she pay for both ?
10. Theda gave 11 cents for a comb, and 3

cents for some hair pins ; what did she pay for them all ?

---

### LESSON V.

1. How many are 4 and 1 ?
2. How many are 4 and 2 ;
3. How many are 4 and 3 ?
4. How many are 4 and 4 ?
5. How many are 4 and 5 ?
6. How many are 4 and 6 ?
7. How many are 4 and 7 ?
8. How many are 4 and 8 ?
9. How many are 4 and 9 ?
10. How many are 4 and 10 ?
11. 4 and 3 are how many ?
12. 4 and 6 are how many ?
13. 2 and 4 are how many ?
14. 4 and 4 are how many ?
15. 7 and 4 are how many ?
16. 4 and 8 are how many ?
17. 5 and 4 are how many ?
18. 10 and 4 are how many ?
19. 9 and 4 are how many ?
20. 4 and 11 are how many ?

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### LESSON VI.

1. Sarah had 4 rings on one finger, and 8 on another ; how many had she in all ?
2. Walter has 9 chickens and William 4 ; how many have they together ?
3. Bought a pencil for 6 cents, and a piece of

India-rubber for 4 cents; what did I pay for both?

4. Bought a bottle of ink for 10 cents, and a pen for 4 cents; what was the cost of both?

5. Gave 4 cents for a lemon, and 2 cents for a peach; what was the cost of both?

6. Gave 4 dollars for a hat, and 4 dollars for a vest; what was the cost of both?

7. Rachel gave 7 cents for some raisins, and 4 cents for some cinnamon; what did she pay for all?

8. Bought a writing book for 5 cents, and a box of pens for 4 cents; what did they all cost?

9. A cat caught 4 of Nancy's chickens, and she had but 11 left; how many had she at first?

10. A boy after losing 4 marbles had only 12 remaining; how many had he at first?

# LESSON VII.

1. How many are 5 and 1?
2. How many are 5 and 2?
3. How many are 5 and 3?
4. How many are 5 and 4?
5. How many are 5 and 5?
6. How many are 5 and 6?
7. How many are 5 and 7?
8. How many are 5 and 8?
9. How many are 5 and 9?
10. How many are 5 and 10?
11. 3 and 5 are how many?

12. 2 and 5 are how many ?
13. 6 and 5 are how many ?
14. 5 and 4 are how many ?
15. 5 and 5 are how many ?
16. 7 and 5 are how many ?
17. 9 and 5 are how many ?
18. 5 and 8 are how many ?
19. 10 and 5 are how many ?
20. 11 and 5 are how many ?

### LESSON VIII.

1. If Charles walk 4 miles in one day, and 5 miles in another, how far does he walk in the two days ?
2. If Rebecca has 5 roses, and Mary gives her 3 more, how many will she then have ?
3. If Joshua has 5 candies, and I give him 2 more, how many will he then have ?
4. Thomas gave 8 apples to his companions, and had 5 remaining ; how many had he at first ?
5. Gave 5 dollars for a pair of pantaloons and 6 dollars for a hat ; what was the whole cost ?
6. Andrew caught 9 birds, and Anthony 5 ; how many did they both catch ?
7. Baldwin, after spending 5 cents, had only 7 cents remaining ; how many had he at first ?
8. Martha bought a ribbon for 10 cents, and a spool of thread for 5 cents ; what was the whole cost ?
9. Caroline had 5 flowers, and Clarinda had 5 ; how many did they together have ?

10. Helen bought a book for 11 cents, and had 5 cents remaining; how much money had she at first?

### LESSON IX.

1. How many are 6 and 1?
2. How many are 6 and 2?
3. How many are 6 and 3?
4. How many are 6 and 4?
5. How many are 6 and 5?
6. How many are 6 and 6?
7. How many are 7 and 6?
8. How many are 8 and 6?
9. How many are 9 and 6?
10. How many are 6 and 10?
11. 3 and 6 are how many?
12. 6 and 4 are how many?
13. 6 and 8 are how many?
14. 6 and 2 are how many?
15. 6 and 5 are how many?
16. 7 and 6 are how many?
17. 9 and 6 are how many?
18. 10 and 6 are how many?
19. 6 and 6 are how many?
20. 6 and 11 are how many?

### LESSON X.

1. Augustus killed 6 birds, and John 2; how many did they both kill?
2. Gave 5 cents to Franklin, and 6 cents to Foster; how many cents did they both receive?

3. Granvil gave me 4 apples, and Mary gave me 6; how many did they both give me?

4. A farmer had 6 cows, and purchased 3 more; how many cows did he then have?

5. Jackson bought 8 papers, and found 6 more; how many had he then?

6. Anna had 6 pictures, and her brother gave her 6 more; how many had she then?

7. A farmer sold 9 horses, and had 6 remaining; how had he at first?

8. A market-woman sold 6 oranges, and had 7 remaining; how many had she at first?

9. A boy sold 10 apples, and had 6 remaining; how many had he at first?

10. After losing 6 chestnuts I had 11 remaining; how many had I at first?

### LESSON XI.

1. How many are 7 and 1?
2. How many are 7 and 2?
3. How many are 7 and 3?
4. How many are 7 and 4?
5. How many are 7 and 5?
6. How many are 7 and 6?
7. How many are 7 and 7?
8. How many are 7 and 8?
9. How many are 7 and 9?
10. How many are 7 and 10?
11. 7 and 4 are how many?
12. 2 and 7 are how many?
13. 7 and 5 are how many?
14. 3 and 7 are how many?

15. 7 and 6 are how many ?
16. 7 and 9 are how many ?
17. 7 and 7 are how many ?
18. 10 and 7 are how many ?
19. 8 and 7 are how many ?
20. 7 and 11 are how many ?

### LESSON XII.

1. A merchant bought 4 barrels of sugar, and 7 barrels of molasses ; how many barrels did he then have ?
2. Albert is 7 years old, and Austin is 6 ; what is the sum of their ages ?
3. Alfred solved 8 questions in arithmetic, and Abraham 7 ; how many did they both solve ?
4. If it take 7 yards of calico for a dress, and 2 yards of cloth for a coat, how many will it take for both ?
5. Isaac bought 7 sheets of paper, and I gave him 3 more ; how many had he then ?
6. If a peck of apples cost 7 cents, and a peck of pears 10 cents, what did they together cost ?
7. Jacob walked 9 miles, and rode 7 ; how far did he go ?
8. In a certain class there are 7 boys, and 7 girls ; how many scholars are there in the class ?
9. Jeremiah found 5 quills, and John found 7 ; how many did they both find ?
10. In a certain recitation there were 11 questions correctly answered, and 7 incorrectly answered ; how many questions were asked ?

## LESSON XIII.

1. How many are 8 and 1?
2. How many are 8 and 2?
3. How many are 8 and 3?
4. How many are 8 and 4?
5. How many are 8 and 5?
6. How many are 8 and 6?
7. How many are 8 and 7?
8. How many are 8 and 8?
9. How many are 8 and 9?
10. How many are 8 and 10?
11. 8 and 2 are how many?
12. 8 and 5 are how many?
13. 8 and 3 are how many?
14. 8 and 7 are how many?
15. 8 and 4 are how many?
16. 8 and 6 are how many?
17. 8 and 9 are how many?
18. 8 and 10 are how many?
19. 8 and 8 are how many?
20. 11 and 8 are how many?

## LESSON XIV.

1. A beggar met two boys, one gave him 7 cents, and the other gave him 8 cents; how many cents did they together give him?
2. A man bought a hat for 5 dollars, and a pair of boots for 8 dollars; what was the cost of both?
3. There were 8 boys on a bench, and 3 *standing*; how many boys were there in all?

4. Rachel gave her teacher 8 pinks, and 2 roses; how many flowers did she give him?

5. Barlow caught 8 squirrels, and Benton caught 4; how many did they both catch?

6. If we learn 6 pages this week, and 8 next; how many will we learn in the two weeks?

7. If in one field there are 8 sheep, and in another 9; how many are there in both?

8. Charles caught 8 fish, and Matthew caught 8; how many did they both catch?

9. George shot 10 pigeons, and James shot 8; how many did they both shoot?

### LESSON XV.

1. How many are 9 and 1?
2. How many are 9 and 2?
3. How many are 9 and 3?
4. How many are 9 and 4?
5. How many are 9 and 5?
6. How many are 9 and 6?
7. How many are 9 and 7?
8. How many are 9 and 8?
9. How many are 9 and 9?
10. How many are 9 and 10?
11. 9 and 3 are how many?
12. 9 and 5 are how many?
13. 7 and 9 are how many?
14. 9 and 9 are how many?
15. 9 and 4 are how many?
16. 9 and 6 are how many?
17. 8 and 9 are how many?
18. 9 and 2 are how many?

19. 9 and 10 are how many?

20. 9 and 11 are how many?

### LESSON XVI.

1. Two boys, John and James, gave some money to a beggar; John gave him 9 cents, and James gave him 4 cents; how many cents did they both give him?

2. Gave 6 cents to Henry, and 9 cents to Hiram; how many cents did I give to both?

3. Gave 7 nuts to one boy, and 9 to another; how many nuts did they both receive?

4. Bought a basket of strawberries for 9 cents, and a basket of plums for 5 cents; what did both cost?

5. Bought a knife for 11 cents, and a whistle for 9 cents; what was the cost of both?

6. Gave 10 cents for an arithmetic, and 9 cents for a slate; what did they both cost?

7. Euphemia has learned 9 lessons, and Maria has learned 8; how many have they together learned?

8. A boy bought a pound of raisins for 9 cents, and a cake for 3 cents; what was the whole cost?

9. A lady bought some tape for 9 cents, and some thread for 2 cents; how much did they both cost?

10. Gave 12 dollars for a cow, and 9 dollars for a sheep; what did I give for both?

LESSON XVII.

1. How many are 10 and 1?
2. How many are 10 and 2?
3. How many are 10 and 3?
4. How many are 10 and 4?
5. How many are 10 and 5?
6. How many are 10 and 6?
7. How many are 10 and 7?
8. How many are 10 and 8?
9. How many are 10 and 9?
10. How many are 10 and 10?
11. 3 and 10 are how many?
12. 5 and 10 are how many?
13. 10 and 2 are how many?
14. 10 and 4 are how many?
15. 8 and 10 are how many?
16. 9 and 10 are how many?
17. 10 and 6 are how many?
18. 10 and 10 are how many?
19. 10 and 7 are how many?
20. 10 and 11 are how many?
21. How many are 11 and 2?
22. How many are 11 and 5?
23. How many are 6 and 11?
24. How many are 11 and 3?
25. How many are 11 and 4?
26. How many are 11 and 7?
27. How many are 9 and 11?
28. How many are 11 and 10?
29. How many are 11 and 12?
30. How many are 11 and 14?

## LESSON XVIII.

1. Mary bought a pencil for 6 cents, a book for 8 cents, and a slate for 10 cents ; what did they all cost ?

2. Joseph had 3 marbles, John 6 and James 10 ; how many did they all have ?

3. Bought a cow for 14 dollars, and a calf for 6 dollars ; what did they both cost ?

4. Bought a bottle of ink for 6 cents, some paper for 5 cents, and some pens for 10 cents ; what did they all cost ?

5. Susan is 11 years old, and Nancy is 9 ; what is the sum of their ages ?

6. If a pound of beef cost 8 cents, and a pound of pork 11 cents, what will the two pounds cost ?

7. A lady bought some pins for 11 cents, and some ribbon for 7 cents ; what was the whole cost ?

8. A sold 9 cows to one man, and 7 cows to another ; how many did he sell to both ?

9. A drover bought 4 cows of one man, 6 of another, and 11 of another ; how many did he buy in all ?

10. A boy gave 10 cents for a whistle, 8 cents for a whip, and 6 cents for a top ; how much did he give for them all ?

11. A merchant sold 12 barrels of flour one week, and 8 the next week ; how many barrels did he sell during the two weeks ?

12. A farmer bought some sugar for 14 dollars, and some molasses for 6 dollars ; what was the whole cost ?

13. Simeon gave 8 cents for a melon, 6 cents for a pine-apple, and had 6 cents remaining; how much had he at first?

14. Abner found 12 eggs, and Alice found 10; how many did they both find?

15. A boy saw 7 pigeons on one tree, 8 on another, and 5 on another; how many did he see in all?

16. A man bought a watch for 15 dollars, and had 10 dollars remaining; how much had he at first?

17. Egbert gave 4 candies to Oliver, 7 to Edwin, and kept 12 himself; how many had he at first?

18. Elizabeth picked 8 quarts of blackberries, Ellen 5 quarts, and Helen 7 quarts; how many quarts did they all pick?

19. Samuel gave 2 dimes for his breakfast, 4 dimes for his dinner, and had 14 dimes left; how much had he at first?

20. A boy traveled 14 miles one day, and 11 the next; how far did he travel in the two days?

## CHAPTER II.

### LESSON I.

1. 3 less 1 are how many?
2. 4 less 1 are how many?
3. 5 less 1 are how many?
4. 6 less 1 are how many?
5. 7 less 1 are how many?

6. 8 less 1 are how many?
7. 9 less 1 are how many?
8. 10 less 1 are how many?
9. 3 less 2 are how many?
10. 4 less 2 are how many?
11. 5 less 2 are how many?
12. 6 less 2 are how many?
13. 7 less 2 are how many?
14. 8 less 2 are how many?
15. 9 less 2 are how many?
16. 10 less 2 are how many?
17. 4 less 3 are how many?
18. 5 less 3 are how many?
19. 6 less 3 are how many?
20. 7 less 3 are how many?
21. 8 less 3 are how many?
22. 9 less 3 are how many?
23. 10 less 3 are how many?
24. 4 less 4 are how many?
25. 5 less 4 are how many?
26. 6 less 4 are how many?
27. 7 less 4 are how many?
28. 8 less 4 are how many?

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### LESSON II.

1. If I have 3 apples and give one of them to James, how many have I left?

SOLUTION.—If I have 3 apples, and give 1 of them away, there will remain the difference between 3 and 1 which is 2; therefore I have 2 left.

2. A boy had 4 chestnuts and gave 1 away ; how many had he left ?

3. Catharine had 6 pins and gave one away ; how many had she left ?

4. Rebecca bought 6 candies, and ate 2 of them ; how many had she left ?

5. Rachel had 4 apples and gave 2 of them to George ; how many had she left ?

6. Alice bought 5 cakes and ate 3 of them for her dinner ; how many had she left ?

7. Agnes had 6 quarts of strawberries and sold 2 of them ; how many had she remaining ?

8. Anna had 5 books and lost 3 of them ; how many had she remaining ?

9. Weston had 6 marbles and gave 2 of them to John ; how many had he remaining ?

10. Eliza had 8 oranges and gave her sister 2 of them ; how many had she remaining ?

11. Sarah had 9 pinks and gave her teacher 2 of them ; how many had she then ?

12. Isaac saw 10 pigeons on a tree ; 2 of them flew away ; how many remained ?

13. David had 6 apples and gave 3 to his brother ; how many had he remaining ?

14. Sold some apples for 9 cents, and some pears for 4 cents ; how much more did I get for the apples than for the pears ?

15. Louis had 8 roses and gave 4 of them to Ann ; how many had he remaining ?

16. Walter gave 9 cents for a book and 4 cents for a pencil ; how much more did the book cost than the pencil ?

17. A farmer sold a calf for 12 dollars, and a

sheep for 4 dollars; how much more did he receive for the calf than for the sheep?

18. Jane is 10 years old and Susan is 6; how many years older than Susan is Jane?

19. Mary found 12 quills and lost 5 of them; how many had she remaining?

20. Pamela gave 13 cents for a comb, and 9 cents for some tape; how much more did the comb cost than the tape?

### LESSON III.

1. 5 less 5 are how many?
2. 6 less 5 are how many?
3. 7 less 5 are how many?
4. 8 less 5 are how many?
5. 9 less 5 are how many?
6. 10 less 5 are how many?
7. 12 less 5 are how many?
8. 6 less 6 are how many?
9. 7 less 6 are how many?
10. 8 less 6 are how many?
11. 9 less 6 are how many?
12. 10 less 6 are how many?
13. 11 less 6 are how many?
14. 6 less 3 are how many?
15. 7 less 5 are how many?
16. 10 less 7 are how many?
17. 9 less 7 are how many?
18. 8 less 5 are how many?
19. 12 less 7 are how many?
20. 14 less 6 are how many?
21. 12 less 2 are how many?

22. 13 less 3 are how many ?
23. 14 less 4 are how many ?
24. 15 less 5 are how many ?
25. 12 less 9 are how many ?
26. 12 less 10 are how many ?
27. 12 less 7 are how many ?
28. 12 less 5 are how many ?
29. 9 less 7 are how many ?
30. 13 less 7 are how many ?

LESSON IV.

1. Edward had 9 oranges, and gave 5 of them to his sister ; how many had he left ?
2. A boy had 11 rabbits, 3 of which were killed by a dog ; how many had he then ?
3. A farmer having 8 bushels of apples, sold 5 bushels of them ; how many were left ?
4. A boy caught 9 birds and 4 squirrels ; how many more birds had he than squirrels ?
5. There were 15 questions asked during a recitation, 5 of which were answered incorrectly ; how many were correctly answered ?
6. Julia finding 14 roses on her bush, picked off 5 ; how many remained on the bush ?
7. There were 7 passengers in a stage, 3 of whom got out ; how many remained in the stage ?
8. A boy having 6 cents, bought 2 cents worth of candies ; how many cents had he remaining ?
9. Henry bought 8 quills and used 3 of them in a week ; how many remained unused ?

10. George sold some marbles for 11 cents, which was 4 cents more than they cost; what did they cost?

11. A merchant bought some sugar for 14 dollars and sold it for 11 dollars; how much did he lose by the bargain?

12. Walter gave 14 cents for a slate and 4 cents for a sponge; how much more did his slate cost than the sponge?

13. Bought a book for 8 cents and sold it for 11 cents; how many cents did I gain?

14. Bought a book for 10 cents and sold it for 15 cents; how many cents did I gain?

15. James bought a pair of boots for 7 dollars and handed the shopkeeper a ten dollar bill; how much change ought he to receive back?

16. Jacob bought a sled for 15 cents and sold it for 9 cents; how much did he lose?

17. If 8 boys are taken out of a class of 18 boys, how many boys will there be left?

18. A lady bought 17 eggs and broke 7 of them; how many had she left?

19. If a window have 16 panes of glass and 7 of them are broken, how many whole panes will be left?

20. Susan is 16 years old and Hezekiah is 12; how much older is Susan than Hezekiah?

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# CHAPTER III.

## LESSON I.

TABLE.

|                  |                  |
|------------------|------------------|
| 2 times 1 are 2. | 3 times 1 are 3. |
| 2 " 2 " 4.       | 3 " 2 " 6.       |
| 2 " 3 " 6.       | 3 " 3 " 9.       |
| 2 " 4 " 8.       | 3 " 4 " 12.      |
| 2 " 5 " 10.      | 3 " 5 " 15.      |
| 2 " 6 " 12.      | 3 " 6 " 18.      |
| 2 " 7 " 14.      | 3 " 7 " 21.      |
| 2 " 8 " 16.      | 3 " 8 " 24.      |
| 2 " 9 " 18.      | 3 " 9 " 27.      |
| 2 " 10 " 20.     | 3 " 10 " 30.     |
| 2 " 11 " 22.     | 3 " 11 " 33.     |
| 2 " 12 " 24.     | 3 " 12 " 36.     |

1. How many are two times 2?
2. How many are two times 4?
3. How many are two times 8?
4. How many are two times 3?
5. How many are two times 5?
6. How many are two times 6?
7. How many are two times 9?
8. How many are two times 7?
9. How many are two times 11?
10. How many are two times 10?
11. How many are two times 12?
12. How many are three times 4?
13. How many are three times 2?
14. How many are three times 3?

15. How many are three times 5?
16. How many are three times 8?
17. How many are three times 7?
18. How many are three times 10?
19. How many are three times 12?
20. How many are three times 11?
21. How many are three times 6?
22. How many are three times 9?

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### LESSON II.

1. What cost 2 lemons, at 4 cents a-piece?

SOLUTION.—If 1 lemon cost 4 cents, 2 lemons will cost two times 4 cents, which are 8 cents.

2. What cost 2 apples, at 2 cents a-piece?
3. What cost 2 peaches, at 3 cents a-piece?
4. What cost 2 caps, at 5 dimes a-piece?
5. What cost 3 melons, at 11 cents a-piece?
6. What cost 3 books, at 12 cents a-piece?
7. What cost 2 slates, at 9 cents a-piece?
8. What cost 2 pencils, at 6 cents a-piece?
9. What cost 2 pounds of raisins, at 12 cents a-pound?
10. What cost 3 pine-apples, at 9 cents a-piece?
11. What cost 3 lamps, at 4 dimes a-piece?
12. What cost 3 looking-glasses, at 6 dimes a-piece?
13. What cost 3 writing-books, at 3 dimes a-piece?
14. What cost 3 candlesticks, at 5 dimes a-piece?

15. What cost 3 inkstands at 7 cents a piece ?
16. What cost 2 balls of tape, at 10 cents a ball ?
17. What cost 2 hammers, at 11 cents a piece ?
18. What cost 3 papers of needles, at 8 cents a paper ?
19. What cost 2 baskets of strawberries, at 7 cents a basket ?
20. What cost 3 quires of paper, at 10 cents a quire ?

### LESSON III.

TABLE.

|                  |                  |
|------------------|------------------|
| 4 times 1 are 4. | 5 times 1 are 5. |
| 4 " 2 " 8.       | 5 " 2 " 10.      |
| 4 " 3 " 12.      | 5 " 3 " 15.      |
| 4 " 4 " 16.      | 5 " 4 " 20.      |
| 4 " 5 " 20.      | 5 " 5 " 25.      |
| 4 " 6 " 24.      | 5 " 6 " 30.      |
| 4 " 7 " 28.      | 5 " 7 " 35.      |
| 4 " 8 " 32.      | 5 " 8 " 40.      |
| 4 " 9 " 36.      | 5 " 9 " 45.      |
| 4 " 10 " 40.     | 5 " 10 " 50.     |
| 4 " 11 " 44.     | 5 " 11 " 55.     |
| 4 " 12 " 48.     | 5 " 12 " 60.     |

1. Four times 3 are how many ?
2. Four times 6 are how many ?
3. Four times 8 are how many ?
4. Four times 7 are how many ?
5. Four times 4 are how many ?
6. Four times 2 are how many ?

7. Four times 11 are how many ?
8. Five times 3 are how many ?
9. Five times 5 are how many ?
10. Five times 4 are how many ?
11. Five times 6 are how many ?
12. Four times 10 are how many ?
13. Five times 2 are how many ?
14. Four times 2 are how many ?
15. Five times 9 are how many ?
16. Five times 8 are how many ?
17. Five times 10 are how many ?
18. Four times 11 are how many ?
19. Five times 11 are how many ?
20. Four times 12 are how many ?
21. Five times 12 are how many ?

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#### LESSON IV.

1. What cost 4 pair of shoes, at 3 dollars a pair ?
2. What cost 5 pounds of mutton, at 6 cents a pound ?
3. What cost 4 barrels of sugar, at 8 dollars a barrel ?
4. What cost 5 pounds of sturgeon, at 10 cents a pound ?
5. What cost 4 pounds of almonds, at 11 cents a pound ?
6. What cost 5 barrels of pork, at 9 dollars a barrel ?
7. What cost 4 pounds of candles, at 10 cents a-pound ?
8. What cost 5 coats, at 4 dollars a piece ?

9. What cost 4 handkerchiefs, at 5 dimes a piece ?
10. What cost 5 lamps, at 3 dimes a piece ?
11. What cost 4 plows, at 7 dollars each ?
12. What cost 5 boxes of caps, at 11 cents a box ?
13. What cost 4 quires of paper, at 12 cents a quire ?
14. What cost 5 letter-folders, at 11 cents each ?
15. What cost 4 bunches of roses, at 7 cents a bunch ?
16. What cost 5 pen-knives, at 12 cents each ?
17. What cost 4 bunches of grapes, at 9 cents a bunch ?
18. What cost 5 yards of calico, at 8 cents a yard ?
19. What cost 4 balls of cotton, at 6 cents a ball ?
20. What cost 5 pounds of ginger, at 7 cents a pound ?

LESSON V.

TABLE.

|                  |                  |
|------------------|------------------|
| 6 times 1 are 6. | 7 times 1 are 7. |
| 6 " 2 " 12.      | 7 " 2 " 14.      |
| 6 " 3 " 18.      | 7 " 3 " 21.      |
| 6 " 4 " 24.      | 7 " 4 " 28.      |
| 6 " 5 " 30.      | 7 " 5 " 35.      |
| 6 " 6 " 36.      | 7 " 6 " 42.      |

|                   |                   |
|-------------------|-------------------|
| 6 times 7 are 42. | 7 times 7 are 49. |
| 6 " 8 " 48.       | 7 " 8 " 56.       |
| 6 " 9 " 54.       | 7 " 9 " 63.       |
| 6 " 10 " 60.      | 7 " 10 " 70.      |
| 6 " 11 " 66.      | 7 " 11 " 77.      |
| 6 " 12 " 72.      | 7 " 12 " 84.      |

1. Six times 2 are how many ?
2. Six times 5 are how many ?
3. Seven times 5 are how many ?
4. Seven times 2 are how many ?
5. Six times 8 are how many ?
6. Six times 7 are how many ?
7. Six times 10 are how many ?
8. Seven times 7 are how many ?
9. Seven times 8 are how many ?
10. Seven times 10 are how many ?
11. Six times 3 are how many ?
12. Six times 6 are how many ?
13. Six times 4 are how many ?
14. Seven times 6 are how many ?
15. Seven times 3 are how many ?
16. Seven times 4 are how many ?
17. Six times 9 are how many ?
18. Six times 12 are how many ?
19. Six times 11 are how many ?
20. Seven times 11 are how many ?
21. Seven times 9 are how many ?
22. Seven times 12 are how many ?

### LESSON VI.

1. What cost 6 quarts of cherries, at 4 cents a quart ?

2. What cost 7 quarts of raspberries, at 4 cents a quart ?

3. What cost 6 lead pencils, at 5 cents each ?

4. What cost 7 quarts of milk, at 3 cents a quart ?

5. What cost 7 yards of ribbon, at 5 cents a yard ?

6. What cost 5 quarts of chestnuts, at 3 cents a quart ?

7. What cost 7 yards of edging, at 2 cents a yard ?

8. What cost 5 ounces of snuff, at 6 cents an ounce ?

9. What cost 5 tomatoes, at 2 cents each ?

10. What cost 7 ounces of cinnamon, at 6 cents an ounce ?

11. What cost 5 pounds of cheese, at 8 cents a pound ?

12. What cost 7 pounds of prunes, at 9 cents a pound ?

13. What cost 5 sheets of wadding, at 9 cents a sheet ?

14. What cost 7 yards of calico, at 8 cents a yard ?

15. What cost 6 skeins of silk, at 8 cents a skein ?

16. What cost 6 pounds of starch, at 12 cents a pound ?

17. What cost 7 barrels of flour, at 10 dollars a barrel ?

18. What cost 6 bushels of potatoes, at 9 dimes a bushel ?

19. What cost 7 primers, at 11 cents each ?  
 20. What cost 7 barrels of fish, at 12 dollars a barrel ?

## LESSON VII.

TABLE.

| 8 times 1 are 8. | 9 times 1 are 9. |
|------------------|------------------|
| 8 " 2 " 16.      | 9 " 2 " 18.      |
| 8 " 3 " 24.      | 9 " 3 " 27.      |
| 8 " 4 " 32.      | 9 " 4 " 36.      |
| 8 " 5 " 40.      | 9 " 5 " 45.      |
| 8 " 6 " 48.      | 9 " 6 " 54.      |
| 8 " 7 " 56.      | 9 " 7 " 63.      |
| 8 " 8 " 64.      | 9 " 8 " 72.      |
| 8 " 9 " 72.      | 9 " 9 " 81.      |
| 8 " 10 " 80.     | 9 " 10 " 90.     |
| 8 " 11 " 88.     | 9 " 11 " 99.     |
| 8 " 12 " 96.     | 9 " 12 " 108.    |

1. Eight times 4 are how many ?
2. Eight times 6 are how many ?
3. Eight times 3 are how many ?
4. Eight times 2 are how many ?
5. Eight times 5 are how many ?
6. Nine times 4 are how many ?
7. Nine times 3 are how many ?
8. Nine times 6 are how many ?
9. Nine times 5 are how many ?
10. Nine times 2 are how many ?
11. Eight times 12 are how many ?
12. Nine times 7 are how many ?
13. *Eight times 11 are how many ?*

14. Nine times 8 are how many ?
15. Nine times 10 are how many ?
16. Eight times 10 are how many ?
17. Eight times 9 are how many ?
18. Nine times 11 are how many ?
19. Eight times 8 are how many ?
20. Nine times 12 are how many ?

LESSON VIII.

1. What cost 9 sticks of tape, at 4 cents a stick ?
2. What cost 8 yards of calico, at 12 cents a yard ?
3. What cost 9 pair of pocket-combs, at 2 cents a pair ?
4. What cost 8 pine-apples, at 11 cents each ?
5. What cost 9 spools of thread, at 3 cents a spool ?
6. What cost 8 brushes, at 10 cents each ?
7. What cost 9 cakes of paint, at 5 dimes a cake ?
8. What cost 8 yards of muslin, at 9 cents a yard ?
9. What cost 9 citrons, at 9 cents each ?
10. What cost 8 boxes of caps, at 8 cents a box ?
11. What cost 9 pomegranates, at 6 cents each ?
12. What cost 8 boxes of figs, at 7 dimes a box ?
13. What cost 9 lemons, at 7 cents each ?

14. What cost 9 feet of boards, at 8 cents a foot?
15. What cost 9 bushels of oats, at 11 cents a bushel?
16. What cost 8 yards of merino, at 6 dimes a yard?
17. What cost 9 yards of broad cloth, at 5 dollars a yard?
18. What cost 9 boxes of cheese, at 10 dollars a box?
19. What cost 8 chickens, at 5 cents each?
20. What cost 9 pigeons, at 12 cents each?

## LESSON IX.

TABLE.

|                    |                    |
|--------------------|--------------------|
| 10 times 1 are 10. | 11 times 1 are 11. |
| 10 " 2 " 20.       | 11 " 2 " 22.       |
| 10 " 3 " 30.       | 11 " 3 " 33.       |
| 10 " 4 " 40.       | 11 " 4 " 44.       |
| 10 " 5 " 50.       | 11 " 5 " 55.       |
| 10 " 6 " 60.       | 11 " 6 " 66.       |
| 10 " 7 " 70.       | 11 " 7 " 77.       |
| 10 " 8 " 80.       | 11 " 8 " 88.       |
| 10 " 9 " 90.       | 11 " 9 " 99.       |
| 10 " 10 " 100.     | 11 " 10 " 110.     |
| 10 " 11 " 110.     | 11 " 11 " 121.     |
| 10 " 12 " 120.     | 11 " 12 " 122.     |

1. If a boy travel 5 miles in one day, how far will he go in 10 days?
2. If a boy earn 5 cents a day, how many cents will he earn in 11 days?

3. If James has 3 marbles, and John has 11 times as many, how many has he ?

4. If a hare run 3 rods in a second, how far will she run in 10 seconds ?

5. Jacob is 7 years old, and Josiah is 11 times as old as Jacob, how old is Josiah ?

6. If I pay 7 cents for riding one mile, how much must I pay for riding 10 miles ?

7. Mary has 2 roses, and Sarah has 10 times as many, how many has she ?

8. Albert killed 2 birds, and saw 11 times as many more, how many did he see ?

9. Rachel has 4 pins, and George 10 times as many, how many has he ?

10. Moses gave 4 cents for a piece of pie, what would 11 pieces cost at the same rate ?

11. If a stage-coach go 6 miles in one hour, how far will it go in 11 hours ?

12. If a man shear 6 sheep in one day, how many can he shear in 10 days ?

13. Henry is worth 8 dollars, and Hiram is worth 11 times as much ; how much is Hiram worth ?

14. What will 8 tons of hay cost, at 10 dollars a ton ?

15. What will 9 firkins of butter cost, at 11 dollars a firkin ?

16. What will 9 pounds of fish cost, at 11 cents a pound ?

17. Munson caught 10 fish, and Marvin 10 times as many ; how many did Marvin catch ?

18. What cost 11 quarts of walnuts, at 10 cents a quart ?

19. A farmer sold 11 cattle, at 11 dollars each; what did he receive for them all?

20. A merchant bought 12 boxes of tea, at 11 dollars a box; what did the tea cost him?

### LESSON X.

TABLE.

|          |       |      |
|----------|-------|------|
| 12 times | 1 are | 12.  |
| 12 "     | 2 "   | 24.  |
| 12 "     | 3 "   | 36.  |
| 12 "     | 4 "   | 48.  |
| 12 "     | 5 "   | 60.  |
| 12 "     | 6 "   | 72.  |
| 12 "     | 7 "   | 84.  |
| 12 "     | 8 "   | 96.  |
| 12 "     | 9 "   | 108. |
| 12 "     | 10 "  | 120. |
| 12 "     | 11 "  | 132. |
| 12 "     | 12 "  | 144. |

1. How many are 12 times 3?
2. How many are 12 times 5?
3. How many are 12 times 4?
4. How many are 12 times 2?
5. How many are 12 times 6?
6. How many are 12 times 7?
7. How many are 12 times 9?
8. How many are 12 times 11?
9. How many are 12 times 12?
10. How many are 12 times 10?
11. In a certain school there were 6 girls and

12 times as many boys ; how many boys were there in the school ?

12. In a certain school-room there are 12 benches and 9 boys on each bench ; how many boys in the school ?

13. In a certain cornfield there are 12 rows and 12 hills in each row ; how many hills in the field ?

14. Bought 5 pounds of beef at 6 cents a pound, and 8 pounds of rice at 5 cents a pound ; what was the whole cost ?

15. A's house is 5 rods from the meeting-house, B's is 3 times as far as A's, and C's is twice as far as B's ; how far B's and C's house from the meeting-house ?

16. A farmer sold 11 bushels of potatoes and had 12 times as many bushels remaining ; how many had he at first ?

17. In a school-room there are 12 rows of seats and 9 seats in each row ; how many seats are there ?

18. What cost 8 pounds of chocolate, at 12 cents a pound ?

19. A boy earned 35 cents a day, and paid 25 cents a day for his board ; how much had he left at the expiration of 6 days ?

20. A farmer bought 9 acres of land at 11 dollars an acre ; what did it all cost ?

## MULTIPLICATION TABLE.

| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10  | 11  | 12  |
|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| 2  | 4  | 6  | 8  | 10 | 12 | 14 | 16 | 18  | 20  | 22  | 24  |
| 3  | 6  | 9  | 12 | 15 | 18 | 21 | 24 | 27  | 30  | 33  | 36  |
| 4  | 8  | 12 | 16 | 20 | 24 | 28 | 32 | 36  | 40  | 44  | 48  |
| 5  | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45  | 50  | 55  | 60  |
| 6  | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54  | 60  | 66  | 72  |
| 7  | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63  | 70  | 77  | 84  |
| 8  | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72  | 80  | 88  | 96  |
| 9  | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81  | 90  | 99  | 108 |
| 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90  | 100 | 110 | 120 |
| 11 | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99  | 110 | 121 | 132 |
| 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 |

## CHAPTER IV.

## LESSON I.

1. 4 are how many times 2?

SOLUTION.—4 are as many times 2, as 2 are contained in 4, which are two times.

2. 2 are how many times 2?

3. 6 are how many times 2?
4. 8 are how many times 2?
5. 10 are how many times 2?
6. 12 are how many times 2?
7. 14 are how many times 2?
8. 16 are how many times 2?
9. 8 are how many times 3?
10. 9 are how many times 3?
11. 6 are how many times 3?
12. 12 are how many times 3?
13. 15 are how many times 3?
14. 18 are how many times 3?
15. 21 are how many times 3?
16. 18 are how many times 2?
17. 20 are how many times 2?
18. 22 are how many times 2?
19. 24 are how many times 3?
20. 24 are how many times 3?

## LESSON II.

1. At 2 cents a-piece, how many apples can you buy for 4 cents?

SOLUTION.—If for 2 cents I can buy 1 apple, for 4 cents I can buy as many apples as 2 is contained in 4, which are 2 times. Therefore at 2 cents a-piece, for 4 cents I can buy 2 apples.

2. At 2 cents a piece, how many pears can I buy for 6 cents?

3. At 2 cents a piece, how many oranges can I buy for 8 cents?

4. At 3 dimes a yard, how many yards of calico can be had for 12 dimes?

5. At 3 cents a-piece, how many lemons can be had for 9 cents?

6. At 2 cents a yard, how many yards of tape can be bought for 10 cents?

7. At 2 dimes a bushel, how many bushels of apples may be had for 12 dimes?

8. How many baskets of strawberries, at 3 cents a basket, can be had for 15 cents?

9. How many pounds of ginger, at 2 dimes a pound, may be had for 14 dimes?

10. For 18 dollars, how many yards of cloth can be had, at 2 dollars a yard?

11. For 16 apples, how many oranges can be bought, at the rate of 2 apples for 1 orange?

12. How many primers, at 2 cents each, can be had for 26 cents?

13. How many barrels of flour, at 2 dollars a barrel, can be bought for 24 dollars?

14. For 22 dollars, how many sheep may be bought, at 2 dollars each?

15. How many melons, at 3 dimes each, may be had for 18 dimes?

16. At 3 cents a-piece, how many tops may be had for 6 cents?

17. If 1 peck of beans cost 3 dimes, how many pecks can be bought for 21 dimes?

18. At 3 cents a mile, how many miles can I ride for 24 cents?

19. How many books, at 4 dimes each, may be had for 24 dimes?

20. How many bushels of apples, at 3 dimes a bushel, may be had for 18 dimes?

LESSON III.

1. 8 are how many times 4?
2. 12 are how many times 4?
3. 16 are how many times 4?
4. 5 are how many times 5?
5. 10 are how many times 5?
6. 20 are how many times 4?
7. 15 are how many times 5?
8. 28 are how many times 4?
9. 20 are how many times 5?
10. 32 are how many times 4?
11. 36 are how many times 2?
12. 28 are how many times 2?
13. 30 are how many times 3?
14. 25 are how many times 5?
15. 35 are how many times 5?
16. 36 are how many times 4?
17. 27 are how many times 3?
18. 36 are how many times 3?
19. 48 are how many times 4?
20. 48 are how many times 3?

LESSON IV.

1. If 4 books cost 8 cents, what will 1 book cost?

SOLUTION.—If 4 books cost 8 cents, 1 book will cost one-fourth of 8 cents, which is 2 cents.

2. If 4 oranges cost 12 cents, what will 1 orange cost?

3. If 4 lemons cost 16 cents, what will 1 lemon cost?

4. If a boy walk 20 miles in 4 days, how far does he walk in 1 day ?

5. If a boy divide 10 apples equally among 5 of his playmates, how many will each receive ?

6. A boy distributed 15 walnuts equally among 5 of his playmates ; how many did each receive ?

7. A man gave 28 dollars for 4 hogs ; how much did they cost a-piece ?

8. A boy sold 5 baskets of berries for 20 cents ; how much did he get for 1 basket ?

9. Mary gave 35 cents for 5 pencils ; how much were they a-piece ?

10. Margaret gave 36 cents for 4 spools of thread ; how much did she pay a-piece ?

11. Thornton walked 27 miles in 3 days ; how far did he walk each day ?

12. If 3 ink-stands cost 36 cents, what will 1 ink-stand cost ?

13. If 2 yards of calico cost 36 cents, how much will 1 yard cost ?

14. If 4 pounds of beef cost 32 cents, what will 1 pound cost ?

15. If 2 balls of cotton cost 28 cents, what will 1 ball cost ?

16. If 3 melons cost 30 cents, what will 1 melon cost ?

17. A man sold 3 cows for 48 dollars ; how much was that a-piece ?

18. Albert gave 36 marbles for 4 oranges ; how many marbles did he give for 1 orange ?

19. A boy gave 48 apples for 4 pine-apples ; how many apples did 1 pine-apple cost ?

20. If 9 yards of cloth cost 36 dollars, what will 1 yard cost ?

LESSON V.

*Multiplication and Division combined.*

1. 3 times 4 are how many times 2 ?

SOLUTION.—3 times 4 are 12. 12 are as many times 2 as 2 is contained in 12 which are 6 times.

2. 3 times 6 are how many times 2 ?

3. 3 times 8 are how many times 2 ?

4. 3 times 10 are how many times 2 ?

5. 3 times 12 are how many times 2 ?

6. 3 times 12 are how many times 4 ?

7. 4 times 4 are how many times 2 ?

8. 4 times 5 are how many times 2 ?

9. 4 times 6 are how many times 3 ?

10. 4 times 7 are how many times 2 ?

11. 4 times 8 are how many times 2 ?

12. 4 times 9 are how many times 6 ?

13. 4 times 10 are how many times 5 ?

14. 4 times 11 are how many times 2 ?

15. 4 times 12 are how many times 6 ?

16. 4 times 12 are how many times 3 ?

17. 5 times 6 are how many times 3 ?

18. 5 times 8 are how many times 4 ?

19. 5 times 9 are how many times 3 ?

20. 5 times 10 are how many times 2 ?

21. How many times 4 are 5 times 12 ?

22. How many times 3 are 6 times 4 ?

23. How many times 3 are 6 times 7 ?

24. How many times 3 are 6 times 5 ?

25. How many times 4 are 6 times 8?
26. How many times 3 are 6 times 10?
27. How many times 3 are 6 times 11?
28. How many times 10 are 8 times 5?
29. How many times 4 are 8 times 7?
30. How many times 6 are 8 times 9?
31. How many times 5 are 8 times 10?
32. How many times 3 are 9 times 6?
33. How many times 6 are 9 times 8?
34. How many times 15 are 9 times 10?
35. How many times 6 are 9 times 12?
36. How many times 7 are 2 times 14?
37. How many times 5 are 10 times 7?
38. How many times 7 are 3 times 14?
39. How many times 9 are 12 times 6?
40. How many times 4 are 12 times 9?

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### LESSON VI.

*Practical questions combining Multiplication and Division.*

1. If 2 pears cost 4 cents, what will 3 pears cost?

SOLUTION.—If 2 pears cost 4 cents, 1 pear will cost one-half of 4 cents, which is 2 cents. If 1 pear cost 2 cents, 3 pears will cost 3 times 2 cents, which are 6 cents.

2. If 2 apples cost 6 cents, what will 5 apples cost?
3. If 2 melons cost 24 cents, what will 3 melons cost?

4. If 2 lemons cost 8 cents, what will 4 lemons cost ?
5. If 2 books cost 10 dimes, what will 6 books cost ?
6. If 2 oranges cost 6 cents, what will 10 oranges cost ?
7. If 3 pine-apples cost 36 cents, what will 7 pine-apples cost ?
8. If 3 slates cost 30 cents, what will 5 slates cost ?
9. If 3 pencils cost 18 cents, what will 6 pencils cost ?
10. If 3 pens cost 9 cents, what will 8 pens cost ?
11. If 3 caps cost 12 dimes, what will 10 caps cost ?
12. If 3 pair of shoes cost 6 dollars, what will 8 pair cost ?
13. If 3 men can earn 18 dollars a week, how many dollars can 8 men earn in the same time ?
14. If 3 candies cost 6 cents, what will 12 candies cost ?
15. If 4 calves cost 16 dollars, what will 9 calves cost ?
16. If 4 sheep cost 12 dollars, what will 12 sheep cost ?
17. If 4 men cut 8 cords of wood, how many cords will 9 men cut ?
18. If 7 quarts of milk cost 35 cents, what will 8 quarts cost ?
19. How many pair of pantaloons can be cut out of 36 yards of cloth, if 4 pair can be cut out of 12 yards of the same kind of cloth ?

20. What will 30 pounds of sugar cost, if 6 pounds cost 30 cents?

21. What will 18 pounds of veal cost, if 6 pounds cost 42 cents?

22. What will 13 pounds of pork cost, if 6 pounds cost 48 cents?

23. What will 20 weeks' board come to, if 6 weeks' board cost 12 dollars?

24. What will be the cost of 25 bushels of apples, if 9 bushels cost 90 cents?

25. What will 14 pounds of cheese cost, if 8 pounds cost 40 cents?

26. If 6 men can do a certain piece of work in 18 days, in how many days can 12 men do the same work?

27. Gave for a quantity of cotton, 72 dollars, and sold it for 12 yards of cloth; how much did the cloth cost a yard?

28. What cost 10 cows, if 3 cows cost 45 dollars?

29. If 4 oranges are worth 16 apples, how many apples are 12 oranges worth?

30. A man bought 5 barrels of flour for 25 dollars, and gave 3 of them for cloth at 5 dollars a yard; how many yards did they buy?

31. How many men can in 4 days, do as much work as 8 men can in 7 days?

32. How many men can in 3 days, do as much work as 9 men in 5 days?

33. How many days will it take 5 men to accomplish, what it takes 6 men 10 days to perform?

34. What will 12 pounds of fish cost, if 8 pounds cost 72 cents?
35. What will 15 yards of cloth cost, if 7 yards cost 35 dollars?
36. What cost 14 geese, if 9 geese cost 72 dimes?
37. What cost 13 candlesticks, if 7 cost 70 cents?
38. What cost 16 ducks, if 5 cost 100 cents?
39. How far can a boy travel in 9 days, if in 7 days he travel 63 miles?
40. How far could a man ride for 120 cents, if for 40 cents he could ride 8 miles?

## CHAPTER V.

### LESSON I.

#### TABLE OF UNITED STATES CURRENCY.

|            |              |                  |
|------------|--------------|------------------|
| 10 Mills   | make 1 Cent, | marked <i>c.</i> |
| 10 Cents   | " 1 Dime,    | " <i>d.</i>      |
| 10 Dimes   | " 1 Dollar,  | " <i>\$.</i>     |
| 10 Dollars | " 1 Eagle,   | " <i>E.</i>      |

1. How many mills in 1 cent? in 2 cents? in 3 cents? in 4 cents? in 6 cents?
2. How many cents in 1 dime? in 3 dimes? in 4 dimes? in 2 dimes? in 5 dimes? in 6 dimes? in 8 dimes?
3. How many dimes in 1 dollar? in 2 dollars? in 4 dollars? in 3 dollars? in 7 dollars? in 8 dollars? in 9 dollars? in 6 dollars?
4. How many dollars in 1 eagle? in 4 eagles? in 3 eagles? in 5 eagles?

5. In 20 mills how many cents?
6. In 40 mills how many cents?
7. In 50 mills how many cents?
8. In 30 cents how many dimes?
9. In 60 cents how many dimes?
10. In 70 cents how many dimes?
11. In 80 cents how many dimes?
12. In 90 cents how many dimes?
13. In 20 dimes how many dollars?
14. In 30 dimes how many dollars?
15. In 40 dimes how many dollars?
16. In 50 dimes how many dollars?
17. In 90 dimes how many dollars?
18. In 80 dimes how many dollars?
19. In 40 dollars how many eagles?
20. In 60 dollars how many eagles?

## LESSON II.

TABLE OF TROY WEIGHT.

|                 |                                       |              |
|-----------------|---------------------------------------|--------------|
| 24 Grains       | make 1 Pennyweight, marked <i>pwt</i> |              |
| 20 Pennyweights | " 1 Ounce,                            | " <i>oz.</i> |
| 12 Ounces       | " 1 Pound,                            | " <i>lb.</i> |

1. How many grains in 2 pennyweights?
2. How many pennyweights in 2 ounces?
3. How many pennyweights in 3 ounces?
4. How many pennyweights in 6 ounces?
5. How many ounces in 2 pounds?
6. How many ounces in 4 pounds?
7. How many ounces in 5 pounds?
8. How many pounds in 60 ounces?
9. How many ounces in 80 pennyweights?
10. How many pounds in 84 ounces?

LESSON III.

TABLE OF AVOIRDUPOIS WEIGHT.

|                   |                     |                   |
|-------------------|---------------------|-------------------|
| 16 Drams          | make 1 Ounce,       | marked <i>oz.</i> |
| 16 Ounces         | " 1 Pound,          | " <i>lb.</i>      |
| 25 Pounds         | " 1 Quarter,        | " <i>qr.</i>      |
| 4 Quarters        | " 1 Hundred-weight, | " <i>cwt.</i>     |
| 20 Hundred-weight | " 1 Ton,            | " <i>T.</i>       |

1. How many drams in 1 ounce? in 2 ounces? in 5 ounces? in 4 ounces?
2. How many ounces in 2 pounds? in 3 pounds?
3. How many pounds in 2 quarters? in 3 quarters? in 4 quarters?
4. How many quarters in 2 hundred-weight?
5. How many hundred-weight in 4 tons? in 3 tons? in 5 tons?
6. How many ounces in 32 drams?
7. How many pounds in 48 ounces?
8. How many quarters in 75 pounds?
9. How many hundred-weight in 12 quarters?
10. How many tons in 60 hundred-weight?

LESSON IV.

TABLE OF CLOTH MEASURE.

|            |                        |                   |
|------------|------------------------|-------------------|
| 24 Inches  | make 1 Nail,           | marked <i>na.</i> |
| 4 Nails    | " 1 Quarter of a yard, | " <i>qr.</i>      |
| 4 Quarters | " 1 Yard,              | " <i>yd.</i>      |
| 3 Quarters | " 1 Ell Flemish,       | " <i>E. Fl.</i>   |
| 5 Quarters | " 1 Ell English,       | " <i>E. E.</i>    |
| 6 Quarters | " 1 Ell French,        | " <i>E. Fr.</i>   |

1. In 2 yards how many quarters?
2. In 3 yards and 3 qrs., how many quarters?

3. In 3 qrs., how many nails?
4. In 2 qrs., and 3 nas., how many nails?
5. In 2 yards how many nails?
6. In 3 yards how many Ells Flemish?
7. In 32 nas., how many yards?
8. In 64 nas., how many yards?
9. In 3 yards and 3 qrs., how many E. E.?
10. In 3 yards how many E. Fr.?

## LESSON V.

## TABLE OF WINE MEASURE.

|             |               |        |              |
|-------------|---------------|--------|--------------|
| 4 Gills     | make 1 Pint,  | marked | <i>pt.</i>   |
| 2 Pints     | " 1 Quart,    | "      | <i>qt.</i>   |
| 4 Quarts    | " 1 Gallon,   | "      | <i>gal.</i>  |
| 42 Gallons  | " 1 Tierce,   | "      | <i>tier.</i> |
| 63 Gallons  | " 1 Hogshead, | "      | <i>hhd.</i>  |
| 2 Hogsheads | " 1 Pipe,     | "      | <i>pi.</i>   |
| 2 Pipes     | " 1 Tun,      | "      | <i>tun.</i>  |

1. How many gills in 4 pts.? in 5 pts.? in 8 pts.?
2. How many pints in 3 qts.? in 2 qts.? in 5 qts.?
3. How many quarts in 2 gal.? in 4 gal.? in 5 gal.?
4. How many gallons in 2 tier.? in 3 tier.?
5. How many gallons in 2 hhds.? in 3 hhds.?
6. How many hogsheads in 2 pipes.? in 4 pi.?
7. How many gills in 1 qt.? in 3 qts.? in 5 qts.?
8. How many pints in 3 gal.? in 4 gal.? in 5 gal.?
9. How many pints in 1 pipe.?

10. How many quarts in 32 gills? in 64 gills?
11. How many gallons in 32 pts.? in 16 pts.?
12. How many gallons in 64 gills?
13. How many hogsheads in 504 qts.?

### LESSON VI.

#### TABLE OF DRY MEASURE.

|          |               |                   |
|----------|---------------|-------------------|
| 2 Pints  | make 1 Quart, | marked <i>qt.</i> |
| 8 Quarts | " 1 Peck,     | " <i>pk.</i>      |
| 4 Pecks  | " 1 Bushel,   | " <i>bu.</i>      |

1. In 2 qts., how many pints?
2. How many pints in 3 qts.? in 4 qts.? in 6 qts.?
3. How many pints in 1 peck? in 2 pecks?
4. How many quarts in 3 pk.? in 4 pk.? in 5 pk.?
5. How many quarts in 2 bushels? in 3 bushels?
6. How many bushels in 8 pecks? in 20 pecks?
7. How many pecks in 16 qts.? in 24 qts.? in 32 qts.?
8. How many quarts in 12 pts.? in 14 pts.? in 18 pts.?
9. How many pecks in 64 pts.? in 32 pts.?
10. How many bushels in 32 qts.? in 64 qts.?

## LESSON VII.

TABLE OF TIME.

|                    |                       |     |
|--------------------|-----------------------|-----|
| 60 Seconds         | make 1 Minute, marked | m.  |
| 60 Minutes         | " 1 Hour, "           | h.  |
| 24 Hours           | " 1 Day, "            | d.  |
| 7 Days             | " 1 Week, "           | w.  |
| 4 Weeks            | " 1 Month, "          | mo. |
| 12 Calendar months | " 1 Year, "           | y.  |
| 52 Weeks           | " 1 Year, "           | y.  |

The following table exhibits the names of the months, and the number of days in each.

|           | NAME.               | DAYS.                 |
|-----------|---------------------|-----------------------|
| Winter. { | 1st, month January, | 31.                   |
|           | 2nd, " February,    | 28, in leap year, 29. |
| Spring. { | 3rd, " March,       | 31.                   |
|           | 4th, " April,       | 30.                   |
|           | 5th, " May,         | 31.                   |
| Summer. { | 6th, " June,        | 30.                   |
|           | 7th, " July,        | 31.                   |
|           | 8th, " August,      | 31.                   |
| Autumn. { | 9th, " September,   | 30.                   |
|           | 10th, " October,    | 31.                   |
|           | 11th, " November,   | 30.                   |
| Winter. { | 12th, " December,   | 31.                   |

The following lines may aid in remembering the number of days in each month :

" Thirty days hath September,  
 April, June, and November ;  
 All the rest have thirty-one,  
 Excepting February all alone,  
 Which hath twenty-eight in fine,  
 Except in Leap year, twenty-nine."

1. Name the Winter months, and the number of days in each month.
2. Name the Spring months, and the number of days in each month.
3. Name the Summer months, and the number of days in each month.
4. Name the Autumn months, and the number of days in each month.
5. How many seconds in 2 minutes? in 4 minutes? in 3 minutes?
6. How many minutes in 2 hours? in 3 hours? in 4 hours?
7. How many hours in 2 days? in 5 days? in 3 days? in 4 days?
8. How many days in 3 weeks? in 4 weeks? in 6 weeks? in 2 weeks?
9. How many weeks in 4 months? in 6 months? in 3 months? in 2 months? in 5 months?
10. How many weeks in 2 years?
11. How many minutes in 180 seconds? in 240 seconds?
12. How many hours in 120 minutes? in 360 minutes?
13. How many days in 48 hours? in 96 hours? in 72 hours?
14. How many weeks in 21 days? in 28 days? in 49 days?
15. How many months in 12 weeks? in 24 weeks? in 36 weeks?
16. How many hours in 3600 seconds?
17. How many months in 52 weeks?
18. How many weeks in 168 hours?

19. How many days in 3 weeks and 3 days?

20. How many hours in 4 days and 4 hours?

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## CHAPTER VI.

### LESSON I.

1. Mary has 4 apples, and Sarah 1 half as many; how many has she?

SOLUTION.—If Mary has 4 apples, and Sarah 1 half as many, she must have one-half of 4 apples, which is 2 apples.

2. Henry is 8 years old, and Harvey is 1 half as old; how old is Harvey?

3. Martin has 6 marbles, and Matthew 1 half as many; how many has he?

4. If you divide 10 apples equally between 2 boys; what part of them will each receive?

5. What is 1 half of 10?

6. If an orange cost 12 cents, and a lemon 1 half as much; what was the cost of a lemon?

7. If 3 apples cost 6 cents, what part of 6 cents will 1 apple cost?

8. What is 1 third of 6?

9. What is 1 half of 4? of 6? of 8? of 10? of 12? of 14? of 16? of 18? of 20? of 24?

10. If 3 oranges cost 9 cents, what part of 9 cents will 1 orange cost? what part of 9 cents will 2 oranges cost?

11. What is 1 third of 3? of 6? of 9? of 12? of 15? of 21? of 24? of 27? of 30?

12. If 1 quart of nuts cost 12 cents, what will 1 third of a quart cost?

13. If 1 ton of hay cost \$15, what will 1 third of a ton cost?

14. If 1 bushel of apples cost 21 cents, what will 1 third of a bushel cost?

15. If 1 yard of shalloon cost 24 cents, what will 1 third of a yard cost?

16. If 1 quart of vinegar cost 9 cents, what will 1 third of a quart cost?

17. If 1 pound of candies cost 12 cents, what part of 12 cents will 1 third of a pound cost? what part of 12 cents will 2 thirds of a pound cost?

18. What is 1 third of 12?

19. If 1 third of 12 is 4, what is 2 thirds of 12?

20. What is 1 third of 6? 2 thirds of 6? 4 thirds of 6? 3 thirds of 6? 5 thirds of 6?

21. If a barrel of flour cost \$9, what will 1 third of a barrel cost? 2 thirds?

22. What is 1 fourth of 12? 2 fourths of 12? 3 fourths of 12?

23. If a barrel of fish cost \$12, what will 1 fourth of a barrel cost? 2 fourths? 3 fourths? 4 fourths?

24. What is 1 fifth of 15? 2 fifths of 15? 3 fifths of 15? 4 fifths of 15? 5 fifths of 15?

25. If a ton of hay cost \$15, what will 1 fifth of a ton cost? 2 fifths? 3 fifths? 4 fifths? 5 fifths?

26. What is 2 thirds of 24? 3 fourths? 3 eighths? 2 fourths?

27. What do you understand by 1 fourth? 3 fourths?

Answer.—When a thing is divided into four equal parts, 1 of these parts is called 1 *fourth*, and 3 of these parts are called 3 *fourths*.

28. What do you understand by 2 fifths? 3 fifths? 4 fifths?

29. What do you understand by 3 sevenths? 4 sevenths? 5 sevenths? 6 sevenths?

30. How many thirds in 1?

31. How many fifths in 1?

32. How many fourths in 1?

33. How many tenths in 1?

34. How many ninths in 1?

35. How many twelfths in 1?

36. What is 1 seventh of \$28? 2 sevenths of \$28? 3 sevenths? 4 sevenths? 6 sevenths? 5 sevenths?

37. If a coat cost \$20, and a pair of pantaloons 1 fourth as much, what is the cost of the pantaloons?

38. If a pound of cheese cost 9 cents, what will 2 thirds of a pound cost?

39. If 12 oranges cost 36 cents, what part of 36 cents will 1 orange cost? 2 oranges? 4 oranges? 3 oranges? 5 oranges? 9 oranges?

40. What is 1 twelfth of 36? 2 twelfths of 36? 5 twelfths of 36? 4 twelfths of 36? 6 twelfths of 36? 9 twelfths? 8 twelfths? 10 twelfths? 11 twelfths?

41. Rachel has 14 primers, and Anthony  $\frac{5}{7}$  sevenths as many; how many has he?

42. Abner is 15 years old, and Albert is  $\frac{4}{5}$  fifths as old; how old is he?

43. Augustus has 40 cents, and Augusta has  $\frac{5}{8}$  eighths as many; how many has she?

44. Martin had 25 marbles, and gave  $\frac{3}{5}$  fifths of them to Moses; how many had he remaining, and how many did he give to Martin?

45. Morgan had 21 fire-crackers, and Nathan had  $\frac{8}{7}$  sevenths as many; how many had he?

46. Matthew had 45 apples, and Marvin had  $\frac{5}{9}$  ninths as many; how many had he?

47. Dubois is 24 years old, and his father is  $\frac{9}{5}$  sixths as old; how old is he?

48. A farmer having 72 sheep, lost  $\frac{1}{9}$  ninth of them; how many had he remaining?

49. A man bought a horse for \$60 dollars, and a cow for  $\frac{3}{5}$  fifths as much; what was the cost of the cow?

50. In a certain school there are 9 girls, and  $\frac{8}{3}$  thirds as many boys; required the number of boys, and the number of boys and girls together.

## LESSON II.

1.  $\frac{3}{4}$  fourths of 12 are how many times 3?

SOLUTION.—1 fourth of 12 is 3, and  $\frac{3}{4}$  fourths are 3 times 3 which are 9. 9 are as many times 3 as 3 are contained in 9, which are 3 times. Therefore  $\frac{3}{4}$  fourths of 12 are 3 times 3.

2.  $\frac{2}{3}$  thirds of 12 are how many times 2?

3.  $\frac{2}{3}$  thirds of 15 are how many times 2?

4. 2 thirds of 24 are how many times 4 ?
5. 2 fourths of 12 are how many times 6 ?
6. 2 fourths of 16 are how many times 4 ?
7. 3 fourths of 16 are how many times 6 ?
8. 2 thirds of 21 are how many times 7 ?
9. 2 thirds of 30 are how many times 5 ?
10. 2 thirds of 27 are how many times 6 ?
11. 3 fourths of 24 are how many times 9 ?
12. 3 fourths of 36 are how many times 9 ?
13. 2 fourths of 36 are how many times 6 ?
14. 3 fourths of 28 are how many times 7 ?
15. 3 fifths of 20 are how many times 6 ?
16. 4 fifths of 20 are how many times 8 ?
17. 4 fifths of 15 are how many times 6 ?
18. 2 fifths of 20 are how many times 2 ?
19. 3 sixths of 24 are how many times 6 ?
20. 5 sixths of 60 are how many times 2 ?
21. 2 sixths of 72 are how many times 6 ?
22. 2 sevenths of 42 are how many times 3 ?
23. 4 sevenths of 42 are how many times 4 ?
24. 3 sevenths of 70 are how many times 5 ?
25. 5 sevenths of 28 are how many times 2 ?
26. 5 eights of 32 are how many times 10 ?
27. 6 eighths of 48 are how many times 12 ?
28. 8 ninths of 36 are how many times 2 ?
29. 9 tenths of 40 are how many times 6 ?
30. 9 twelfths of 96 are how many times 6 ?

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### LESSON III.

1. 4 fifths of 15 are how many times 1 half of 12 ?

2. 2 thirds of 12 are how many times 1 third of 6 ?
3. 2 fourths of 20 are how many times 1 half of 20 ?
4. 3 fourths of 16 are how many times 1 third of 18 ?
5. 3 fifths of 20 are how many times 1 fourth of 24 ?
6. 3 fifths of 30 are how many times 1 half of 18 ?
7. 4 fifths of 30 are how many times 1 eighth of 64 ?
8. 3 fourths of 24 are how many times 1 fifth of 45 ?
9. 5 sixths of 54 are how many times 1 third of 9 ?
10. 2 thirds of 36 are how many times 2 thirds of 9 ?
11. 2 thirds of 24 are how many times 2 thirds of 6 ?
12. 2 fifths of 45 are how many times 2 fifths of 15 ?
13. 3 fifths of 50 are how many times 2 sixths of 18 ?
14. 6 eights of 48 are how many times 2 fifths of 15 ?
15. 8 ninths of 27 are how many times 1 fourth of 24 ?
16. 8 ninths of 54 are how many times 3 fourths of 16 ?
17. 8 ninths of 72 are how many times 4 halves of 8 ?
18. 7 eights of 64 are how many times 2 sixths of 42 ?

19. 3 ninths of 108 are how many times 3 fourths of 16 ?

20. 4 sevenths of 84 are how many times 4 fifths of 30 ?

#### LESSON IV.

1. If 2 thirds of an orange cost 4 cents, what will 1 orange cost ?

SOLUTION.—If 2 thirds of an orange cost 4 cents, 1 third will cost 1 half of 4 cents, which is 2 cents. If 1 third of an orange cost 2 cents, 3 thirds, which is a whole one, will cost 3 times 2 cents, which are 6 cents.

2. If 2 thirds of a melon cost 6 cents, what will 1 third of a melon cost ?

3. If 3 fourths of a pound of sugar cost 9 cents, what will 1 fourth of a pound cost ?

4. If 2 thirds of a pound of ginger cost 8 cents, what will 1 third of a pound cost ?

5. If 4 thirds of a pound of spice cost 12 cents, what will 1 third of a pound cost ?

6. If \$8 will buy 2 fifths of a barrel of fish, what will 1 fifth of a barrel cost ?

7. If 3 fourths of a pound of cinnamon cost 9 cents, what will 1 fourth of a pound cost ?

8. What will 1 sixth of a yard of cloth cost, if 4 sixths of a yard cost 120 cents ?

9. What will 1 seventh of a hogshead of molasses cost, if 5 seventh of a hogshead cost \$15 ?

10. If 2 thirds of a barrel of fish cost \$8, what will 1 barrel cost ?

11. If  $\frac{3}{4}$  of a bushel of wheat cost 9 dimes, what will 1 bushel cost?
12. If  $\frac{4}{5}$  of a box of raisins cost 12 dimes, what will 1 box cost?
13. If  $\frac{6}{8}$  of a yard of broad cloth cost 30 dimes, what will 1 yard cost?
14. If  $\frac{3}{4}$  of a barrel of flour cost \$6, what will 1 barrel cost?
15. If  $\frac{2}{5}$  of a barrel of fish cost \$8, what will 1 barrel cost?
16. If  $\frac{3}{4}$  of a pound of cinnamon cost 12 cents, what will 1 pound cost?
17. If  $\frac{4}{6}$  of a barrel of sugar cost \$12, what will 1 barrel cost?
18. If  $\frac{5}{7}$  of a box of boots cost \$20, what will 1 box of boots cost?
19. If  $\frac{4}{9}$  of a hogshead of molasses cost \$20, what will 1 hogshead cost?
20. If  $\frac{2}{5}$  of the cost of a wagon were \$60, what was the cost of the wagon?



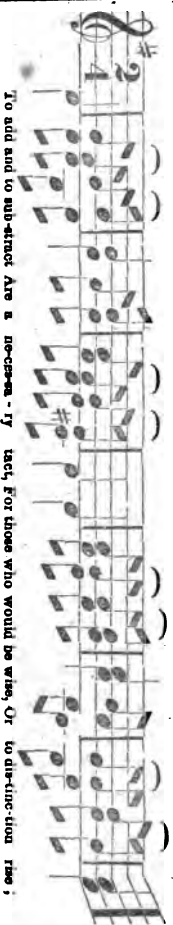
# ARITHMETICAL TABLES, COMPRISING ADDITION, SUBTRACTION, MULTIPLICATION, AND DIVISION.

ARRANGED ON A NEW PLAN, AND SET TO MUSIC,

BY THURMAN H. BOWEN,

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To add and to sub-tract are a nec-essary tact, For those who would be wise, Or to dis-tinc-tion rise;



We'll mul-ti-ply, di-vide, Sub-tract, and add be-side; And take them all a-long In a mer-ry lit-tle song.

## DIRECTIONS.

"TABLES TO BE SUNG."—A verse or more may be sung, and then the class should be examined in the same. This will fix them in the memory. For variety the tune may occasionally be repeated with animation, using the syllable *la*.

"TABLES NOT TO BE SUNG."—These are added to make this arrangement complete. They might be sung, but it will be more profitable to intersperse them with the others, using the music *only* for what it was intended—to *make this usually dry study interesting*. The pupil will observe to reverse the numbers as in the "*Tables to be sung*;" thus, 12 and 7, 7 and 12; 12 from 19, 7 from 19; 12 times 7, 7 times 12; 12 in 84, 7 in 84, &c.

¶ Much time should be spent in questioning the class, both collectively and singly; without this, success cannot be certain; with it, a failure would be next to impossible.

## TABLES TO BE SUNG.

2 and 3 are 5,  
 3 and 2 are 5;  
 2 from 5 leaves 3  
 3 from 5 leaves 2;  
 2 times 3 are 6,  
 3 times 2 are 6;  
 2 in 6 are 3,  
 3 in 6 are 2.

2 and 4 are 6,  
 4 and 2 are 6;  
 2 from 6 leaves 4,  
 4 from 6 leaves 2;  
 2 times 4 are 8,  
 4 times 2 are 8;  
 2 in 8 are 4,  
 4 in 8 are 2.

2 and 5 are 7,  
 5 and 2 are 7;  
 2 from 7 leaves 5,  
 5 from 7 leaves 2;  
 2 times 5 are 10,  
 5 times 2 are 10;  
 2 in 10 are 5,  
 5 in 10 are 2.

2 and 6 are 8,  
 6 and 2 are 8;  
 2 from 8 leaves 6,  
 6 from 8 leaves 2,  
 2 times 6 are 12,  
 6 times 2 are 12;  
 2 in 12 are 6,  
 6 in 12 are 2.

2 and 7 are 9,  
 7 and 2 are 9;  
 2 from 9 leaves 7,  
 7 from 9 leaves 2;  
 2 times 7 are 14,  
 7 times 2 are 14;  
 2 in 14 are 7,  
 7 in 14 are 2.

2 and 8 are 10,  
 8 and 2 are 10;  
 2 from 10 leaves 8,  
 8 from 10 leaves 2;  
 2 times 8 are 16,  
 8 times 2 are 16;  
 2 in 16 are 8,  
 8 in 16 are 2.

2 and 9 are 11,  
 9 and 2 are 11;  
 2 from 11 leaves 9,  
 9 from 11 leaves 2;  
 2 times 9 are 18,  
 9 times 2 are 18;  
 2 in 18 are 9,  
 9 in 18 are 2.

3 and 4 are 7,  
 4 and 3 are 7;  
 3 from 7 leaves 4,  
 4 from 7 leaves 3;  
 3 times 4 are 12,  
 4 times 3 are 12;  
 3 in 12 are 4,  
 4 in 12 are 3.

## TABLES TO BE SUNG:

3 and 5 are 8;  
 5 and 3 are 8;  
 3 from 8 leaves 5;  
 5 from 8 leaves 3;  
 3 times 5 are 15;  
 5 times 3 are 15;  
 3 in 15 are 5;  
 5 in 15 are 3.

3 and 9 are 12;  
 9 and 3 are 12;  
 3 from 12 leaves 9;  
 9 from 12 leaves 3;  
 3 times 9 are 27;  
 9 times 3 are 27;  
 3 in 27 are 9;  
 9 in 27 are 3.

3 and 6 are 9;  
 6 and 3 are 9;  
 3 from 9 leaves 6;  
 6 from 9 leaves 3;  
 3 times 6 are 18;  
 6 times 3 are 18;  
 3 in 18 are 6;  
 6 in 18 are 3.

4 and 5 are 9;  
 5 and 4 are 9;  
 4 from 9 leaves 5;  
 5 from 9 leaves 4;  
 4 times 5 are 20;  
 5 times 4 are 20;  
 4 in 20 are 5;  
 5 in 20 are 4.

3 and 7 are 10;  
 7 and 3 are 10;  
 3 from 10 leaves 7;  
 7 from 10 leaves 3;  
 3 times 7 are 21;  
 7 times 3 are 21;  
 3 in 21 are 7;  
 7 in 21 are 3.

4 and 6 are 10;  
 6 and 4 are 10;  
 4 from 10 leaves 6;  
 6 from 10 leaves 4;  
 4 times 6 are 24;  
 6 times 4 are 24;  
 4 in 24 are 6;  
 6 in 24 are 4.

3 and 8 are 11;  
 8 and 3 are 11;  
 3 from 11 leaves 8;  
 8 from 11 leaves 3;  
 3 times 8 are 24;  
 8 times 3 are 24;  
 3 in 24 are 8;  
 8 in 24 are 3.

4 and 7 are 11;  
 7 and 4 are 11;  
 4 from 11 leaves 7;  
 7 from 11 leaves 4;  
 4 times 7 are 28;  
 7 times 4 are 28;  
 4 in 28 are 7;  
 7 in 28 are 4.

## TABLES TO BE SUNG.

4 and 8 are 12,  
 8 and 4 are 12;  
 4 from 12 leaves 8,  
 8 from 12 leaves 4;  
 4 times 8 are 32,  
 8 times 4 are 32;  
 4 in 32 are 8,  
 8 in 32 are 4.

5 and 8 are 13,  
 8 and 5 are 13;  
 5 from 13 leaves 8,  
 8 from 13 leaves 5;  
 5 times 8 are 40,  
 8 times 5 are 40;  
 5 in 40 are 8,  
 8 in 40 are 5.

4 and 9 are 13,  
 9 and 4 are 13;  
 4 from 13 leaves 9,  
 9 from 13 leaves 4;  
 4 times 9 are 36,  
 9 times 4 are 36;  
 4 in 36 are 9,  
 9 in 36 are 4.

5 and 9 are 14,  
 9 and 5 are 14;  
 5 from 14 leaves 9,  
 9 from 14 leaves 5;  
 5 times 9 are 45,  
 9 times 5 are 45;  
 5 in 45 are 9,  
 9 in 45 are 5.

5 and 6 are 11,  
 6 and 5 are 11;  
 5 from 11 leaves 6,  
 6 from 11 leaves 5;  
 5 times 6 are 30,  
 6 times 5 are 30;  
 5 in 30 are 6,  
 6 in 30 are 5.

6 and 7 are 13,  
 7 and 6 are 13;  
 6 from 13 leaves 7,  
 7 from 13 leaves 6;  
 6 times 7 are 42,  
 7 times 6 are 42;  
 6 in 42 are 7,  
 7 in 42 are 6.

5 and 7 are 12,  
 7 and 5 are 12;  
 5 from 12 leaves 7,  
 7 from 12 leaves 5;  
 5 times 7 are 35,  
 7 times 5 are 35;  
 5 in 35 are 7,  
 7 in 35 are 5.

6 and 8 are 14,  
 8 and 6 are 14;  
 6 from 14 leaves 8,  
 8 from 14 leaves 6;  
 6 times 8 are 48,  
 8 times 6 are 48;  
 6 in 48 are 8,  
 8 in 48 are 6.

## TABLES TO BE SUNG.

|                     |                     |
|---------------------|---------------------|
| 6 and 9 are 15,     | 7 and 9 are 16,     |
| 9 and 6 are 15;     | 9 and 7 are 16;     |
| 6 from 15 leaves 9, | 7 from 16 leaves 9, |
| 9 from 15 leaves 6; | 9 from 16 leaves 7; |
| 6 times 9 are 54,   | 7 times 9 are 63,   |
| 9 times 6 are 54;   | 9 times 7 are 63;   |
| 6 in 54 are 9,      | 7 in 63 are 9,      |
| 9 in 54 are 6.      | 9 in 63 are 7.      |

|                     |                     |
|---------------------|---------------------|
| 7 and 8 are 15,     | 8 and 9 are 17,     |
| 8 and 7 are 15;     | 9 and 8 are 17;     |
| 7 from 15 leaves 8, | 8 from 17 leaves 9, |
| 8 from 15 leaves 7; | 9 from 17 leaves 8; |
| 7 times 8 are 56,   | 8 times 9 are 72,   |
| 8 times 7 are 56;   | 9 times 8 are 72;   |
| 7 in 56 are 8,      | 8 in 72 are 9,      |
| 8 in 56 are 7.      | 9 in 72 are 8.      |

## TABLES NOT TO BE SUNG.

## ADDITION AND SUBTRACTION.

|                 |                     |
|-----------------|---------------------|
| 2 and 2 are 4;  | 2 from 4 leaves 2.  |
| 3 and 3 are 6;  | 3 from 6 leaves 3.  |
| 4 and 4 are 8;  | 4 from 8 leaves 4.  |
| 5 and 5 are 10; | 5 from 10 leaves 5. |
| 6 and 6 are 12; | 6 from 12 leaves 6. |
| 7 and 7 are 14; | 7 from 14 leaves 7. |
| 8 and 8 are 16; | 8 from 16 leaves 8. |
| 9 and 9 are 18; | 9 from 18 leaves 9. |

|                  |                      |
|------------------|----------------------|
| 10 and 1 are 11; | 10 from 11 leaves 1. |
| 10 and 2 are 12; | 10 from 12 leaves 2. |
| 10 and 3 are 13; | 10 from 13 leaves 3. |
| 10 and 4 are 14; | 10 from 14 leaves 4. |
| 10 and 5 are 15; | 10 from 15 leaves 5. |
| 10 and 6 are 16; | 10 from 16 leaves 6. |

## TABLES NOT TO BE SUNG.

## ADDITION AND SUBTRACTION.

|    |     |    |     |     |    |      |    |        |     |
|----|-----|----|-----|-----|----|------|----|--------|-----|
| 10 | and | 7  | are | 17; | 10 | from | 17 | leaves | 7.  |
| 10 | and | 8  | are | 18; | 10 | from | 18 | leaves | 8.  |
| 10 | and | 9  | are | 19; | 10 | from | 19 | leaves | 9.  |
| 10 | and | 10 | are | 20; | 10 | from | 20 | leaves | 10. |
| 10 | and | 11 | are | 21; | 10 | from | 21 | leaves | 11. |
| 10 | and | 12 | are | 22; | 10 | from | 22 | leaves | 12. |

|    |     |    |     |     |    |      |    |        |     |
|----|-----|----|-----|-----|----|------|----|--------|-----|
| 11 | and | 1  | are | 12; | 11 | from | 12 | leaves | 1.  |
| 11 | and | 2  | are | 13; | 11 | from | 13 | leaves | 2.  |
| 11 | and | 3  | are | 14; | 11 | from | 14 | leaves | 3.  |
| 11 | and | 4  | are | 15; | 11 | from | 15 | leaves | 4.  |
| 11 | and | 5  | are | 16; | 11 | from | 16 | leaves | 5.  |
| 11 | and | 6  | are | 17; | 11 | from | 17 | leaves | 6.  |
| 11 | and | 7  | are | 18; | 11 | from | 18 | leaves | 7.  |
| 11 | and | 8  | are | 19; | 11 | from | 19 | leaves | 8.  |
| 11 | and | 9  | are | 20; | 11 | from | 20 | leaves | 9.  |
| 11 | and | 10 | are | 21; | 11 | from | 21 | leaves | 10. |
| 11 | and | 11 | are | 22; | 11 | from | 22 | leaves | 11. |
| 11 | and | 12 | are | 23; | 11 | from | 23 | leaves | 12. |

|    |     |    |     |     |    |      |    |        |     |
|----|-----|----|-----|-----|----|------|----|--------|-----|
| 12 | and | 1  | are | 13; | 12 | from | 13 | leaves | 1.  |
| 12 | and | 2  | are | 14; | 12 | from | 14 | leaves | 2.  |
| 12 | and | 3  | are | 15; | 12 | from | 15 | leaves | 3.  |
| 12 | and | 4  | are | 16; | 12 | from | 16 | leaves | 4.  |
| 12 | and | 5  | are | 17; | 12 | from | 17 | leaves | 5.  |
| 12 | and | 6  | are | 18; | 12 | from | 18 | leaves | 6.  |
| 12 | and | 7  | are | 19; | 12 | from | 19 | leaves | 7.  |
| 12 | and | 8  | are | 20; | 12 | from | 20 | leaves | 8.  |
| 12 | and | 9  | are | 21; | 12 | from | 21 | leaves | 9.  |
| 12 | and | 10 | are | 22; | 12 | from | 22 | leaves | 10. |
| 12 | and | 11 | are | 23; | 12 | from | 23 | leaves | 11. |
| 12 | and | 12 | are | 24; | 12 | from | 24 | leaves | 12. |

## MULTIPLICATION AND DIVISION.

|   |       |   |     |     |   |    |    |     |    |
|---|-------|---|-----|-----|---|----|----|-----|----|
| 2 | times | 2 | are | 4;  | 2 | in | 4  | are | 2. |
| 3 | times | 3 | are | 9;  | 3 | in | 9  | are | 3. |
| 4 | times | 4 | are | 16; | 4 | in | 16 | are | 4. |
| 5 | times | 5 | are | 25; | 5 | in | 25 | are | 5. |

|         |       |     |      |        |    |
|---------|-------|-----|------|--------|----|
| 6 times | 6 are | 36; | 6 in | 36 are | 6. |
| 7 times | 7 are | 49; | 7 in | 49 are | 7. |
| 8 times | 8 are | 64; | 8 in | 64 are | 8. |
| 9 times | 9 are | 81; | 9 in | 81 are | 9. |

|          |        |      |       |         |     |
|----------|--------|------|-------|---------|-----|
| 10 times | 1 are  | 10;  | 10 in | 10 are  | 1.  |
| 10 times | 2 are  | 20;  | 10 in | 20 are  | 2.  |
| 10 times | 3 are  | 30;  | 10 in | 30 are  | 3.  |
| 10 times | 4 are  | 40;  | 10 in | 40 are  | 4.  |
| 10 times | 5 are  | 50;  | 10 in | 50 are  | 5.  |
| 10 times | 6 are  | 60;  | 10 in | 60 are  | 6.  |
| 10 times | 7 are  | 70;  | 10 in | 70 are  | 7.  |
| 10 times | 8 are  | 80;  | 10 in | 80 are  | 8.  |
| 10 times | 9 are  | 90;  | 10 in | 90 are  | 9.  |
| 10 times | 10 are | 100; | 10 in | 100 are | 10. |
| 10 times | 11 are | 110; | 10 in | 110 are | 11. |
| 10 times | 12 are | 120; | 10 in | 120 are | 12. |

|          |        |      |       |         |     |
|----------|--------|------|-------|---------|-----|
| 11 times | 1 are  | 11;  | 11 in | 11 are  | 1.  |
| 11 times | 2 are  | 22;  | 11 in | 22 are  | 2.  |
| 11 times | 3 are  | 33;  | 11 in | 33 are  | 3.  |
| 11 times | 4 are  | 44;  | 11 in | 44 are  | 4.  |
| 11 times | 5 are  | 55;  | 11 in | 55 are  | 5.  |
| 11 times | 6 are  | 66;  | 11 in | 66 are  | 6.  |
| 11 times | 7 are  | 77;  | 11 in | 77 are  | 7.  |
| 11 times | 8 are  | 88;  | 11 in | 88 are  | 8.  |
| 11 times | 9 are  | 99;  | 11 in | 99 are  | 9.  |
| 11 times | 10 are | 110; | 11 in | 110 are | 10. |
| 11 times | 11 are | 121; | 11 in | 121 are | 11. |
| 11 times | 12 are | 132; | 11 in | 132 are | 12. |

|          |        |      |       |         |     |
|----------|--------|------|-------|---------|-----|
| 12 times | 1 are  | 12;  | 12 in | 12 are  | 1.  |
| 12 times | 2 are  | 24;  | 12 in | 24 are  | 2.  |
| 12 times | 3 are  | 36;  | 12 in | 36 are  | 3.  |
| 12 times | 4 are  | 48;  | 12 in | 48 are  | 4.  |
| 12 times | 5 are  | 60;  | 12 in | 60 are  | 5.  |
| 12 times | 6 are  | 72;  | 12 in | 72 are  | 6.  |
| 12 times | 7 are  | 84;  | 12 in | 84 are  | 7.  |
| 12 times | 8 are  | 96;  | 12 in | 96 are  | 8.  |
| 12 times | 9 are  | 108; | 12 in | 108 are | 9.  |
| 12 times | 10 are | 120; | 12 in | 120 are | 10. |
| 12 times | 11 are | 132; | 12 in | 132 are | 11. |
| 12 times | 12 are | 144; | 12 in | 144 are | 12. |





# MULTIPLICATION TABLE.

|    | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10  | 11  | 12  |
|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| 2  | 4  | 6  | 8  | 10 | 12 | 14 | 16 | 18  | 20  | 22  | 24  |
| 3  | 6  | 9  | 12 | 15 | 18 | 21 | 24 | 27  | 30  | 33  | 36  |
| 4  | 8  | 12 | 16 | 20 | 24 | 28 | 32 | 36  | 40  | 44  | 48  |
| 5  | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45  | 50  | 55  | 60  |
| 6  | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54  | 60  | 66  | 72  |
| 7  | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63  | 70  | 77  | 84  |
| 8  | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72  | 80  | 88  | 96  |
| 9  | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81  | 90  | 99  | 108 |
| 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90  | 100 | 110 | 120 |
| 11 | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99  | 110 | 121 | 132 |
| 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 |